

IN THE CLAIMS

1. (Currently Amended) A method for identifying an antimicrobial peptide which binds to an infective stage microorganism and damages said microorganism comprising

- (a) contacting an infective stage microorganism with a plurality of non-identical peptides,
- (b) identifying peptides that bind to the microorganism, and
- 3(c) assaying the peptides identified in (b) for capacity to damage the microorganism,

wherein damage to said microorganism by a peptide of (c) indicates that the peptide of (c) is an antimicrobial peptide which binds to an infective stage microorganism and damages said microorganism.

2. (Original) The method of claim 1, wherein the plurality of peptides is expressed on a bacteriophage.

3. (Original) The method of claim 1, comprising contacting said microorganism with a library of synthetic peptides.

4. (Original) The method of claim 1, wherein the microorganism is a protozoa, a fungus, a gram positive bacterium or a gram negative bacterium.

5. (Original) An isolated antimicrobial peptide consisting of from 10 to about 50 amino acids, wherein said peptide comprises 10 to about 12 contiguous amino acids of which 7 out of the 10 to about 12 amino acids are hydrophobic residues, 3 of the 10 to about 12 contiguous amino acids are basic residues and at least one of the 10 to about 12 amino acids is histidine (His), glutamic acid (Glu) or serine (Ser), with the proviso that two of the hydrophobic amino acids are adjacent tryptophans (Trp).

6. (Original) The isolated antimicrobial peptide of claim 5, comprising the amino acid sequence set forth in SEQ ID NO:1 or a conservative variant of SEQ ID NO: 1.

7. (Original) The isolated antimicrobial peptide of claim 5, wherein said peptide is amidated, carboxymethylated or cyclized.



8. (Original) Analogs of the peptides of the claim 5 having the same antimicrobial activity.

9. (Original) An isolated nucleic acid molecule, which encodes the antimicrobial peptide of claim 5.

10. (Original) The nucleic acid molecule of claim 9, wherein said isolated antimicrobial peptide consists of the amino acid sequence set forth in SEQ ID NO: 1.

11. (Original) Expression vector comprising the isolated nucleic acid molecule of claim 9 in operable linkage with a promoter.

12. (Original) The expression vector of claim 11, wherein said expression vector is a bacteriophage, a virus, a plasmid or a cosmid.

13. (Original) A host cell comprising the nucleic acid molecule of the claim 9.

14. (Original) A host cell comprising the expression vector of claim 11.

15. (Original) The host cell of claim 13, wherein said host cell is a bacterium, a yeast cell, an insect cell, an avian cell, a plant cell or a mammalian cell.

16. (Original) The host cell of claim 14, wherein said host cell is a bacterium, a yeast cell, an insect cell, an avian cell, a plant cell or a mammalian cell.

17. (Original) A method for preventing growth, inhibiting growth or decreasing viability of a microorganism comprising contacting said microorganism with an effective amount of the polypeptide of claim 5, sufficient to prevent growth, to inhibit growth or to decrease viability of said microorganism.

18. (Original) The method of claim 17, wherein said microorganism is a protozoa or a fungus.

19. (Original) The method of claim 17, wherein said microorganism is present in an environment that is capable of sustaining viability of the microorganism.

20. (Original) The method of claim 19 wherein said environment is a water sample, a food product, a feed, an animal or a plant.



21. (Original) The method of claim 18, wherein the protozoa is an *Eimeria* species, a *Toxoplasma* species, a *Crithidia* species, or a *Trypanosoma* species.

22. (Original) The method of claim 18, wherein the fungus is selected from the group consisting of *Candida albicans* or *Aspergillus nidulans*, *Colletotrichum gossypii*, *Alternaria macrospora*, *Bipolaris sorokiniana*, *Dreschslera tritici*, *Phoma sorghina*, *Microdochium oryzae*, *Bipolaris oryzae*, *Pyricularia grisea*, *Colletotrichum gloeosporioides*, *Rhizoctonia solani* and *Fusarium solani*.

23. (Original) The method of claim 18, wherein the protozoa is selected from the group consisting of *E. acervulina* or *E. tenella*.

24. (Currently Amended) A method for treating an organism infected with a pathogenic microorganism comprising administering an effective amount of the isolated antimicrobial peptide of claim [1]5 to said organism sufficient to alleviate said infection.

25. (Original) The method of claim 24, wherein said organism is a bird, a mammal or a plant.

26. (Original) The method of claim 24, wherein the pathogenic microorganism is a fungus or a protozoa.

27. (Original) The method of claim 26, wherein the protozoa is an *Eimeria* or a *Toxoplasma*.

28. (Original) The method of claim 26, wherein the fungus is selected from the group consisting of *Candida albicans*, *Aspergillus nidulans*, *Colletotrichum gossypii*, *Alternaria macrospora*, *Bipolaris sorokiniana*, *Dreschslera tritici*, *Phoma sorghina*, *Microdochium oryzae*, *Bipolaris oryzae*, *Pyricularia grisea*, *Colletotrichum gloeosporioides*, *Rhizoctonia solani* and *Fusarium solani*.

29. (Original) The peptide of claim 6, wherein said peptide exhibits low toxicity to animal and plant cells.

